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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/771,400 | 02/05/2004 | Chung Peng | SUND 498 | 3835 |

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| EXAMINER |
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LEE, GUNYOUNG T

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| ART UNIT | PAPER NUMBER |
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2875

DATE MAILED: 09/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

112A

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|------------------------------|------------------------|--|---------------------|--|
| Office Action Summary | Application No. | | Applicant(s) | |
| | 10/771,400 | | PENG ET AL. | |
| | Examiner | | Art Unit | |
| | Gunyoung T. Lee | | 2875 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Claim Objections

1. Claim 8 is objected to because of the following informalities: "horsehoe" on page 17, line and page 18, line 8 should be "horseshoe". Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1-2, 4-5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsai et al. (US 6,722,773) in view of Fordsmand (US 3,965,345).

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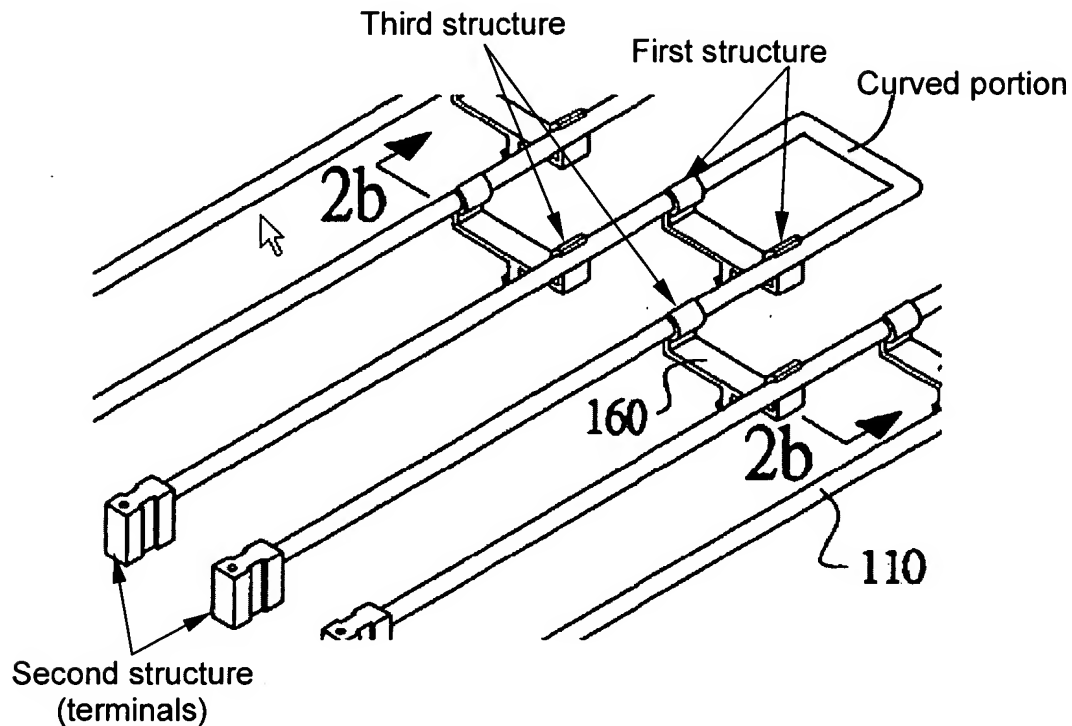
5. In regards to claims 1-2, 4-5 and 7, Tsai et al. disclose an illuminating device having:

- A U-shaped fluorescent tube (Fig. 2, 110) having a curved tube portion (114) and two straight-tube luminous portions of equal length, parallel to each other and situated at the same side of the curved tube portion (114);
- Wherein each of the straight-tube luminous portions has one end connected to one or the other end of the curved tube portion (Fig. 2, 114);
- Two electrode portions (which are parts of the terminals, 112 in Fig. 1) correspondingly disposed at the other end of the two straight-tube luminous portions;
- A first structure which envelops the entire or part of curved tube portion (Fig. 2, 114);
- A second structure which envelops one of the two electrode portions (Fig. 2);
- A third structure which envelops the lower half of the central tube of one of the straight-tube luminous portions (Fig. 2a);

However, Tsai et al does not disclose:

- The first, second, and third structures as thermal conductive heat dissipating structures (claim 1);
- The first, second, and third structures are metals (claim 2);
- The first, second, and third structures are rubbers (claim 4);
- The first, second, and third structures are high reflecting materials (claim 5);

- A heat-dissipating fluid for cooling off the central tube of one of the two straight-tube luminous portions (claim 7).



6. In regards to the first, second, and third structures as thermal conductive heat dissipating structures (claim 1) and made of metals (claim 2) and made of high reflecting materials (claim 5); Fordsmand discloses a cooling/mounting fixture (Fig. 1, 10) for a fluorescent tube (col. 1, lines 40-44) which is made of a heat conductive material such as aluminum or aluminum alloy (col. 2, lines 15-19) and envelops the lower half of the fluorescent tube (Fig. 1) (col. 2, lines 34-39). It is well known in the art that a polished, smooth surface of aluminum or aluminum alloy can provide high reflection. It would have been obvious to one of ordinary skill in the art at the time of the

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invention to use the metal cooling/mounting fixture of Fordsmand in the places of the first, second and third mounting structures of Tsai et al. to dissipate the excessive heat generated from a fluorescent tube for the purpose of controlling operation temperature of a backlighting device which is generally placed in an enclosed housing.

7. In regards to the first, second, and third structures made of a rubber (claim 4), Tsai et al. acknowledge that the rubber fastener used to mount an U shaped fluorescent lamp facilitates the heat dissipation from the lamp (col. 1, lines 31-33). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a rubber material for the heat dissipating structures to dissipate the excessive heat generated by the fluorescent lamp efficiently and to secure the lamp from an impact.

8. In regards to a heat-dissipating fluid for cooling off the central tube of one of the two straight-tube luminous portions (claim 7), Fordsmand discloses that a substantial part of the heat generated by the fluorescent tube (Fig. 1, 14) will be transferred and absorbed by a coolant or the fluorescent tube (14) may be air cooled by means of air current flowing (col. 4, lines 19-29). It would have been obvious to one of ordinary skill in the art at the time of the invention to use a heat-dissipating fluid (coolant or air) to carry away the excessive heat generated by the fluorescent tube quickly and efficiently.

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9. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsai et al. (US 6,722,773) and Fordsmand (US 3,965,345) as applied to claim 1 above, and further in view of Delrosso (US 6,088,501).

10. In regards to claims 3 and 6, Tsai et al. and Fordsmand disclose the invention substantially as claimed except for:

- The first, second, and third structures are plastics (claim 3);
- The first, second, and third structures are transparent materials (claim 6);

11. In regards to the first, second, and third structures made of plastic (claim 3) and transparent materials (claim 6), Delrosso discloses an apparatus for protecting optical fibers (Fig. 6) with a thermally conductive plastic element (460) having an appropriate thermal contact with the tubes (470) inside which the optical fibers are kept (col. 11, lines 49-63). It is well known in the art that the various transparent plastics are available for the engineering applications. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the thermally conductive plastic element of Delrosso for the illuminating device of Tsai et al. modified by Fordsmand to provide less manufacturing difficulties which will reduce the cost for making the device.

12. Claims 8-10, 12-13, 15-16 and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsai et al. (US 6,722,773) and Fordsmand (US 3,965,345) in view of Moon (US 6,796,678).

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13. Tsai et al. and Fordsmand were discussed in the rejection of claim 1 above. In regards to claims 8-10, 12-13, 15-16 and 18-20, Tsai et al. and Fordsmand disclose the invention substantially as claimed except for a bezel having:

- A body portion (claim 8) with a reflector sheet (claim 15);
- A first supporting portion whose top end has a horseshoe slot (claim 8);
- A second supporting portion whose top end has fixing slots (claim 8).

Moon discloses a backlighting device having:

- A body portion (col. 4, lines 14-16) including a reflector sheet (Fig. 4, 44);
- A first supporting portion (Fig. 4, 41a) whose top end has a slot (46);
- A second supporting portion (Fig. 4, 41b) whose top end has fixing slots.

Moon expressly teaches that the slots (Fig. 4, 46) are designed to accommodate both the fluorescent lamp (31) and its supporting structure (42) (col. 4, lines 21-32). Thus, it is obvious to have a horseshoe shaped slot/groove to receive a U-shaped fluorescent lamp. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the bezel of Moon for the illuminating device of Tsai et al. modified by Fordsmand for the purpose of securing the fluorescent lamps from vibration or external impact and thereby enhancing the heat transfer process from the fluorescent lamps to the surrounding structures (i.e. the body portion, the first supporting portion and the second supporting portion).

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14. Claims 11, 14 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsai et al. (US 6,722,773), Fordsmand (US 3,965,345) and Moon (US 6,796,678) as applied to claims 8, 9 and 15 above, and further in view of Delrosso (US 6,088,501).

15. In regards to claims 11, 14 and 17, Tsai et al., Fordsmand and Moon disclose the invention substantially as claimed except for:

- The first, second, and third structures are plastics (claims 11, 17);
- The first, second, and third structures are transparent materials (claim 14);

16. In regards to the first, second and third structures made of plastic (claims 11, 17) and transparent materials (claim 14), Delrosso discloses an apparatus for protecting optical fibers (Fig. 6) with a thermally conductive plastic element (460) having an appropriate thermal contact with the tubes (470) inside which the optical fibers are kept (col. 11, lines 49-63). It is well known in the art that the various transparent plastics are available for the engineering applications. It would have been obvious to one of ordinary skill in the art at the time of the invention to use the thermally conductive plastic element of Delrosso for the illuminating device of Tsai et al. modified by Fordsmand and Moon to provide less manufacturing difficulties which will reduce the cost for making the device.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sterling (US 2,589,744), Ibaraki (US 5,886,758), Williams et al.


(US 3,197,629) and Eargle (US 3,712,981) show backlighting devices having U-shaped fluorescent lamps and supporting structures.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gunyoung T. Lee whose telephone number is (571) 272-8588. The examiner can normally be reached on 7:30 - 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra L. O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

GTL
9/23/2005



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